MONTANA DEPARTMENT OF TRANSPORTATION
JOB PROFILE AND EVALUATION

SECTION I - Identification

Working Title:	Computer Programmer	Department	Transportation
Job Code Number:	151215	Division & Bureau	Information Service Division Applications Bureau
Job Code Title:	Computer Programmer	Section & Unit	Applications and Analysis Team

Pay Band: 5

Position Number : 20003, 20005, 23002, 25027, 81025, 20009, 20040, 23010, 25014, 81013, 81020, 81021, 81026, 81108, 81117, 81118

Career Ladder 3-0198

Work Address	2701 Prospect Ave
	Helena, MT 59620 Phone

☐ FLSA Exempt   X FLSA Non-Exempt

Profile done by: Joe Schopfer   Work Phone   444-4173

Work Unit Mission Statement or Functional Description

The Information Services Division (ISD) provides a full range of services for the Montana Department of Transportation (MDT). The bureaus within the division plan and set policy, and coordinate, design, install and maintain the department's information technology infrastructure. This includes network management, server systems administration, desk top and mobile computer systems administration, database administration, applications development and maintenance, integrated systems development, Internet and Intranet web page developments, data security & disaster recovery services, geographic information systems (GIS), global positioning systems (GPS), roadway information collection, user support, training, imaging services, duplication services, IT research and development, budget development and monitoring, procurement administration, contract administration, and project management. The division also includes the MDT Duplicating Services Section.

Describe the Job's Overall Purpose:

This position will perform programming tasks as a member of a project team in support of the Department of Transportations day-to-day operations. The incumbent will use or adapt as necessary the most current programming methodologies from computer science effectively program, test and debug application changes or enhancements. Programming documentation is required to be completed by the incumbent.

SECTION II - Major Duties or Responsibilities   % of Time

A.   **Computer Programming** (95%)

Assess the available programming environments within the department and determine what specific environment or mix of environments best suits the programming task to be accomplished and the needs of the program's users.   Suggest the adoption of new environments if applicable. Design, write, and test computer programs based on the results of the analysis phase of the systems design process. Thoroughly test the programs and assess user satisfaction with the end product.

1. Write, update, and maintain computer programs or software packages to handle a variety of tasks such as tracking inventory, storing or retrieving data, or controlling other equipment.

2. Identify critical test points for particular computer programs. Design testing processes to thoroughly evaluate all of the reasonably identifiable variations in data, input, and output.

3. Carefully identify the source or sources for all errors discovered during the testing process. Note the implications of complex interactions between multiple procedures, routines, or other sections of code on the error identification and corrections process.

4. Conduct trial runs of programs and software applications to be sure they will produce the desired information and that the instructions are correct.

5. Compile and write documentation of program development and subsequent revisions, inserting comments in the coded instructions so others can understand the program.

6. Consult with managerial and technical personnel to clarify program intent, discuss programming complexities or new methods required, and propose solutions including platforms, languages, interfaces, tools, and methods.

7. Perform or direct revision, repair, or expansion of existing computer programs to increase operating efficiency or adapt to new requirements. Carefully evaluate the interdependencies between the program to be modified and any other existing programs, database interfaces, re-usable code modules, department business practices, and user interactions.

8. Apply the principles of Computer Science to create workflow charts and other relevant diagrams to detail program flow, logic, input and output requirements, and interfaces.

9. Write or contribute to instructions or manuals to guide end users.

10. Integrate individual efforts with team's requirements. Identify points of interface with other programs to create successful program level interfaces.

11. Maintain confidentiality on all sensitive issues.

B.   All other duties as assigned (5%)

The most complicated aspect of this position is?
    A computer programmer needs to learn and use the MDT applications programming development standards and processes. The position requires the ability to listen carefully,

the ability to learn technology and existing processes quickly, ability to think logically and produce sound and robust programming code. Finally, the programs will be thoroughly documented and tested before final release to the users.

What guidelines, manuals or written procedures support this position?
Laws, regulations, guidelines, manuals or procedures available to the incumbent include MCA, ARM, Information Services Division policies and operational procedures, system manuals and documentation, Montana Operations Manual, SABHRS manuals, MDT ISD and state information technology standards, department operating procedures, and technical system references. Primary guides for the work are found in standards of the profession and current best practices in information technology.   Available references include various software and system manuals and technical documentation.

4. Does this position supervise others?   ☐ Yes   ☒ No
Number directly supervised: .
Complexity level of the positions supervised   .
Position Number(s) of those supervised   .

5. This position is responsible for:
☐ Hiring   ☐ Firing   ☐ Supervision   ☐ Pay Level
☐ Performance Management   ☐ Promotions   ☐ Discipline
☐ Other:

6.   Attach an Organizational Chart.

SECTION III - Minimum Qualifications - List minimum requirements for the **first day** of work.

Critical knowledge and skills required for this position:

Knowledge

Knowledge of computer programming methodologies, working knowledge of PC's and operating systems, computer program application development standards and processes

Skills

Reading Comprehension, Active Listening, Writing, Speaking, Critical Thinking. Active Learning, Learning Strategies, Service Orientation, Programming, Troubleshooting, and Judgment.

Behaviors required to perform these duties?

Plan, Organize, Gather Information and Conduct Research
Define an end result. Set or follow a course of action to achieve it. Anticipate potential obstacles and monitor progress. Organize tasks into component parts in a rational, methodical way. Collect and use relevant information, data, and opinions.

Identify Problems
Assess situations in a logical and methodical way based on facts. Seek root causes. Recognize patterns, connections, themes, and issues. See implications and consequences of a situation or information.

Take a Reasonable, Logical Approach to Solving Problems
Develop feasible solutions based on logical assumptions and factual observation that reflect consideration for resources, constraints, organizational values and goals.

Quality, Accuracy, Attention to Detail
Achieve excellent work results by attending to details. Demonstrate an appropriate level of precision to complete projects successfully and to execute job responsibilities in a timely manner.

Listening
Give full attention to and make a conscious effort to hear other's ideas, concerns, questions, and issues with interest, empathy, and objectivity. Paraphrase and ask questions to ensure understanding of the message when required.

Speaking Effectively
Express and present thoughts and ideas clearly, succinctly, and in an understandable manner individually and in a group. Adjust language, delivery, or terminology to meet the needs of the audience. This competency includes any type of verbal communication such as giving presentations, providing training, giving testimony, speaking in person or by phone.

Writing Effectively
Express and present information and ideas in writing which is clear, succinct, and understandable. Adjust the language, writing style, and terminology used to meet the need and level of understanding of the reader. Utilize knowledge of the structure and content of the English language, including the meaning and spelling of words, rules of composition, and grammar. (This competency includes any type of formal or informal written communication: i.e. letters, reports, studies, presentations, articles, rules, policies, procedures, and manuals.)

Direction
The ability to work under the direction of lead technical staff or supervisors.

Troubleshooting
Determining causes of operating errors and deciding what to do about it.

<u>Education:</u>
Check the <u>one box</u> indicating **minimum** education requirements for this position for a new employee the **first day** of work:

☐ No education required ☐ Related AAS/2-years college/vocational training
☐ High school diploma or equivalent ☒ Related Bachelor's Degree
☐ 1-year related college/voc. training ☐ Related Master's degree

Required/Acceptable degrees: Bachelors Degree in Computer Science Computer Information

Systems.

<u>Experience:</u>
Check the <u>one box</u> indicating **minimum** work-related experience requirements for this position for a new employee the **first day** of work:

☒ No prior experience required   ☐ 3 to 4 years
☐ 1 to 2 years   ☐ 5 or more years

Other specific experience (optional):

<u>Alternative Qualifications:</u>
This agency will accept alternative methods of obtaining qualifications. ☒ Yes   ☐   No
BA/BS in Computer Science or Computer Information Systems OR AS in Computer Science or Computer Information Systems or a BA/BS in a field unrelated to Computer Science plus 1 year of computer programming experience or AS if a field unrelated to Computer Science and three years of computer programming experience OR five years of computer programming experience. Programming experience includes writing code, testing and documenting programs.

SECTION V – Signatures

Signature indicates this statement is accurate and complete.

Employee:

Name: Title

Signature   Date

Immediate Supervisor:

Name: Title

Signature   Date

Division/District Administrator:

Michael G. Bousliman   Division Administrator
Name: Title

Signature   Date

Department Designee:

Jennifer Jensen   Human Resources Administrator

Name: Title

Signature   Date

Recruitment Review: My signature below attests to my review of and determination that the minimum qualifications (education and experience) listed in this profile meet the established recruitment standards of MDT.

                    Human Resource Specialist (Helena/District)

Name: Title

Signature   Date

MDT- JOB EVALUATION FORM

Prepared By Jennifer Jensen   Date December 27, 2004

Position Status: ☐ Reclassified ☒ Vacant ☐ New Position ☐ Career Ladder

Choice of Class Series: *151516, Computer Systems Analyst*, describes positions that analyze science, engineering, business, and all other data processing problems for application to electronic data processing systems. Additionally, these positions analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations; may analyze or recommend commercially available software; and, may supervise computer programmers. Typical tasks include:

- Analyze information processing or computation needs and plan and design computer systems, using techniques such as structured analysis, data modeling and information engineering.

- Assess the usefulness of pre-developed application packages and adapt them to a user environment.

- Confer with clients regarding the nature of the information processing or computation needs a computer program is to address.

- Define the goals of the system and devise flow charts and diagrams describing logical operational steps of programs.

- Determine computer software or hardware needed to set up or alter system.

- Develop, document and revise system design procedures, test procedures, and quality standards.

- Expand or modify system to serve new purposes or improve work flow.

- Interview or survey workers, observe job performance and/or perform the job in order to determine what information is processed and how it is processed.

- Provide staff and users with assistance solving computer related problems, such as malfunctions and program problems.

- Recommend new equipment or software packages.

Position Summary:

This position performs systems analysis and design and programming tasks individually and as a member of a project team in support of the day-to-day operations. The position uses and adapts the most current systems analysis and design methodologies from computer science and business process analysis to effectively determine the requirements for a new system or the changes to be made to an existing system. The position documents requirements; translates the requirements into computer code; and, writes and tests the necessary programs. The position trains users and assesses user satisfaction. The position reports to the Computer Information Systems Manager (#81015) and does not supervise others.

Benchmark Factoring

Classification Factor Level: 6

The predominant work of this position consists of: system analysis and design, problem resolution, and development work This includes developing, coding, and maintaining programs; conducting research and testing of new applications and hardware; and providing user support and training.

Factor level Comparison:

The predominant work of the position consists of the intellectual analysis and evaluation in the advanced application of professional principles and practices of system design and computer programming to complex assignments involving the development, enhancement, implementation, and maintenance of transportation and management systems. Systems development and programming activities require the evaluation and interpretation of a variety of construction and maintenance program regulations and processes. The work involves determining the relevant importance, utility, and value of diverse variables such as federal, state, and agency rules and regulations, programmatic constraints, available resources, costs benefits of system development and implementation, and consequences of systems design and programming decisions. Due to the wide variety of circumstances surrounding assignments, approaches taken and the nature of problem resolution are individual in each case.

Benchmark Comparisons:

Similar to the benchmark Information Systems Support Specialist, grade 15A, cc 020122, factor level 6. In both positions, the predominant work consists of intellectual analysis and evaluation in applying the principles and practices of computer science, programming, and network administration to complex and diverse assignments. Both involve the resolution of complex system problems through the development of programs and system designs and determining the applicability of diverse variables and the nature of relationships among diverse elements such as agency needs, objectives, and system capabilities. Both positions provide network administration, systems development and technical support for the agency. Both positions require similar education and experience (a bachelor's degree in computer science or related field and four years of related experience).

Similar to the benchmark Information Systems Support Specialist, grade 15B, cc 020122, factor level 6. In both positions, the predominant work consists of intellectual analysis and evaluation in applying the principles, practices, and concepts of computer science to assignments such as maintaining existing networks, developing network plans, resolving computer and network problems, and providing training. Both involve the resolution of complex problems through the development of methods and techniques and both require the interpretation and analysis of user needs and department standards, knowledge of network administration, and knowledge of equipment requirements and constraints.

Classification Analyst:

Jennifer Jensen	Human Resource Specialist
Name:	Title

	December 27, 2004
Signature	Date

Agency Approval:

Jean Bond	Chief, Employee Relations Bureau
Name:	Title

Signature	Date